

**RTCA Free Flight Select Committee
Safe Flight 21 Steering Committee**

Eurocontrol ADS Programme

ADS-B Technical Link Assessment Team (TLAT)

**Technical Link Assessment Report
March 2001**

APPENDIX K - Attachment 1

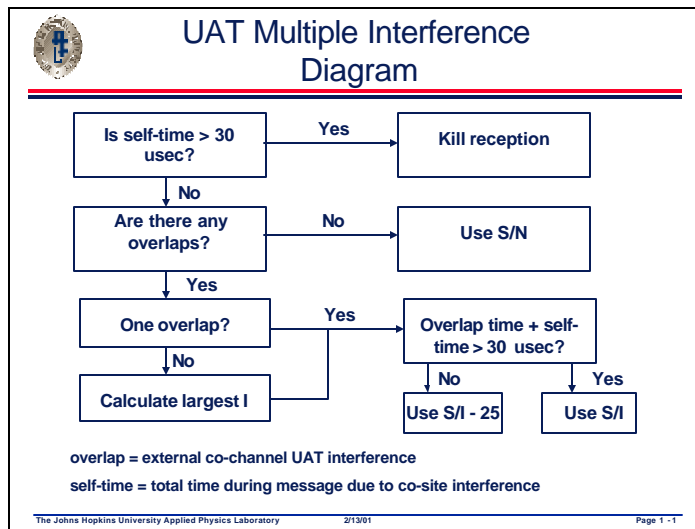
UAT Simulation Results

For each of the considered scenarios, there are a number of graphs per scenario depicting:

- the message success rate versus the range
- the State vector update time versus range, and
- the TCP update time versus range.

The simulation selected an A3-equipped victim transceiver near the center of the LA 2020 scenario at an altitude of 39000 ft, and another A3-equipped transceiver at 37000 ft for the Core Europe 2015 scenario. The receiver sensitivities were both assumed to be -93 dBm. The antenna gain model described in Appendix J was implemented for the simulation. These were the same receivers selected for the simulations of the other two candidates.

Slide 1



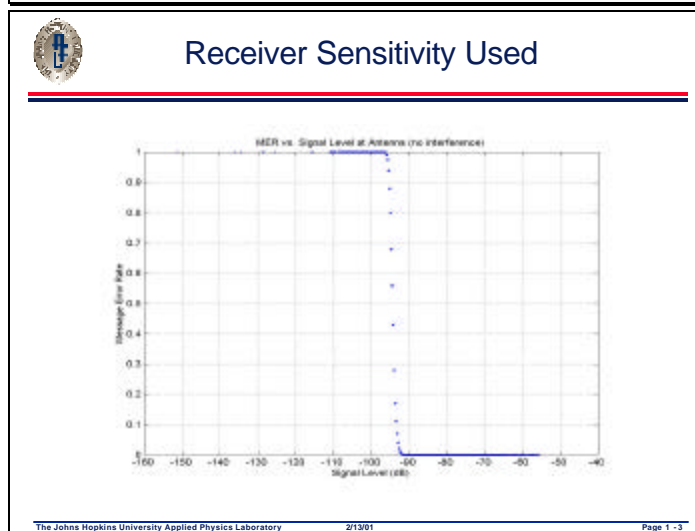
Slide 2

Sources of Co-site Interference

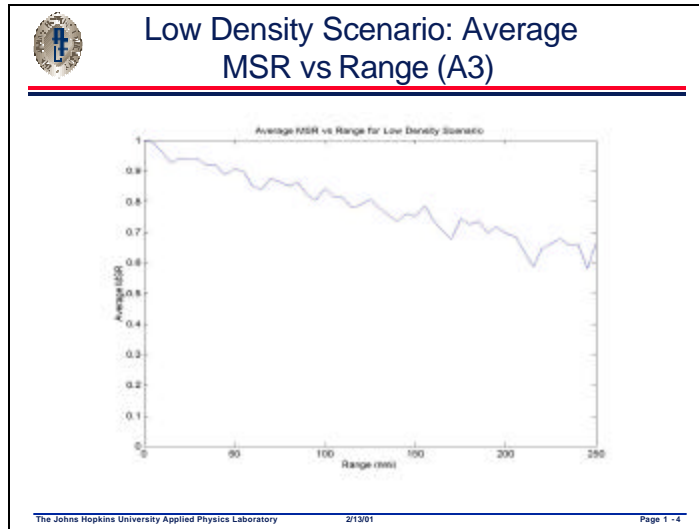
Type	Number/Sec	Duration (usec)
DME	70	12
ATCRBS Replies	~200	20
Mode S Replies	~4-5	64
Mode S Interrogations	~5	20
Whisper-Shout Interrogations	~80	25

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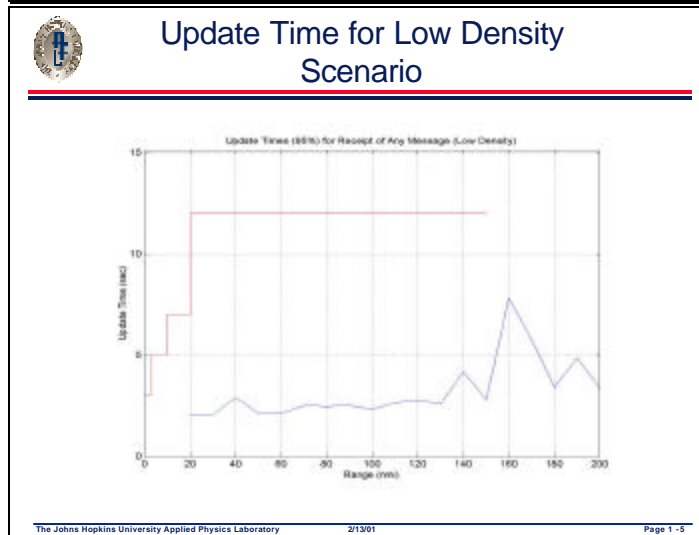
Slide 3



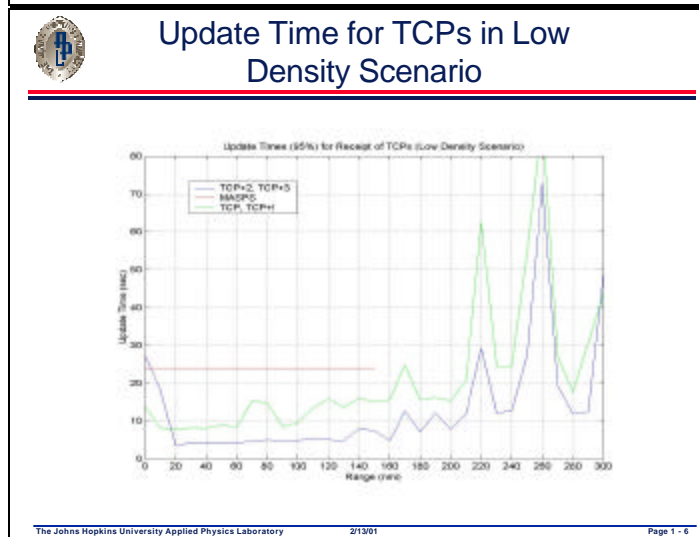
Slide 4




Slide 5



Slide 6



Slide 7

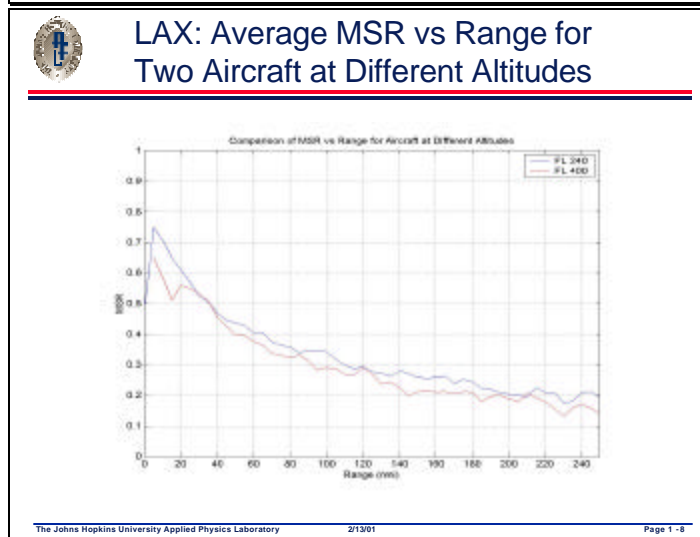


Observations on Low Density Results

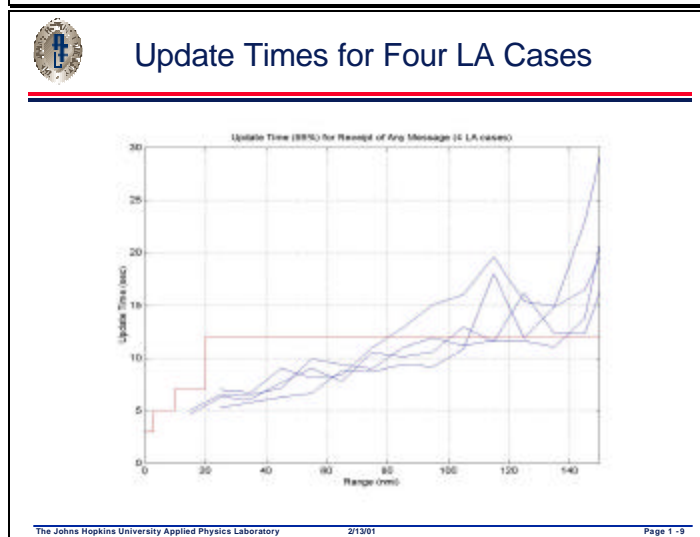
- UAT performs well out to limit of scenario
- UAT does not exceed MASPS/Eurocontrol limit for state vector update
- UAT does not exceed MASPS/Eurocontrol limit until outside of 150 miles for TCP updates

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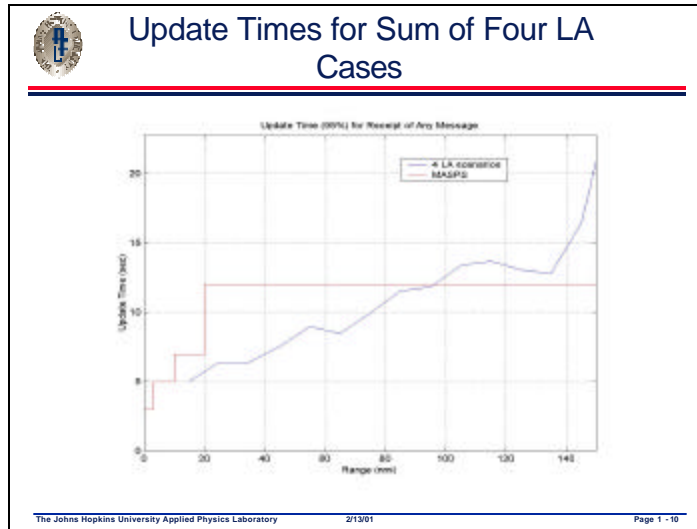
Slide 8



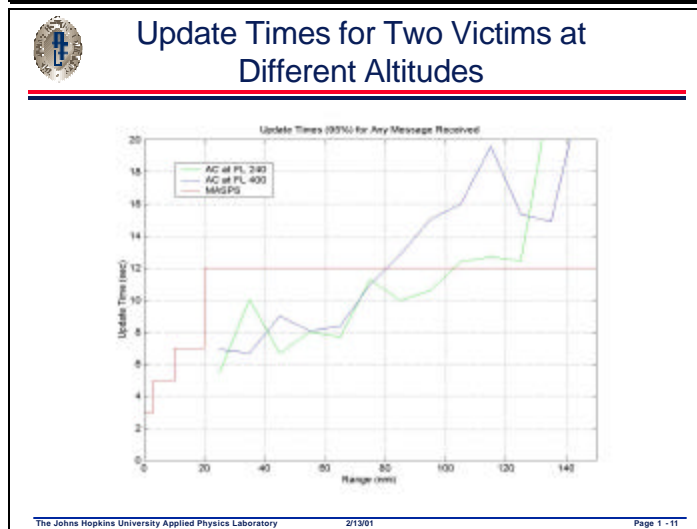
Slide 9



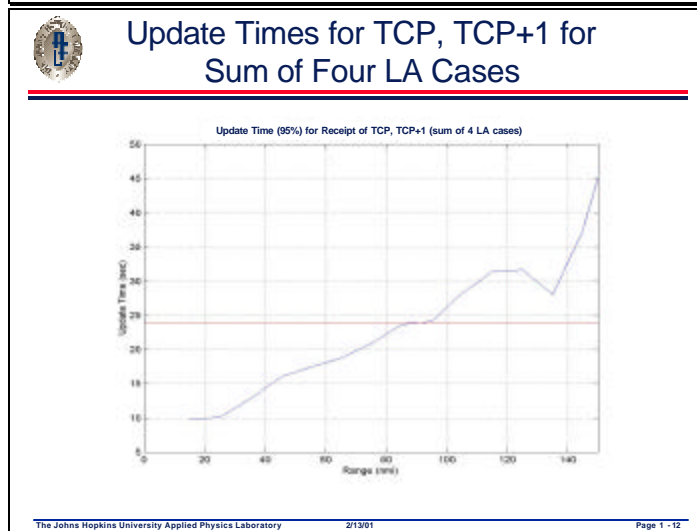
Slide 10



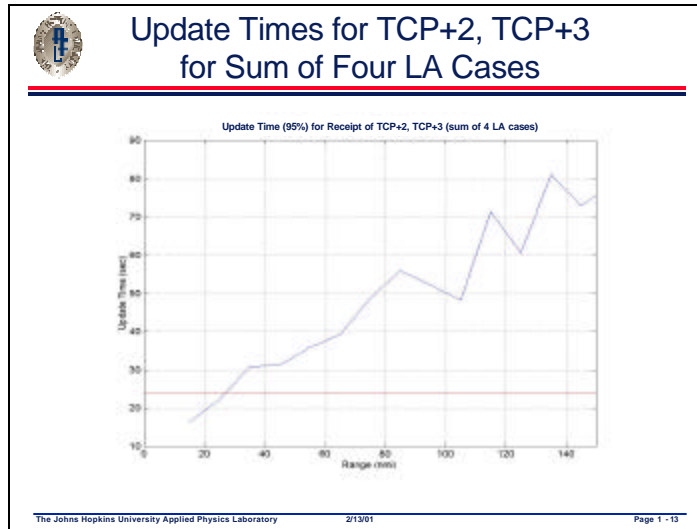
Slide 11



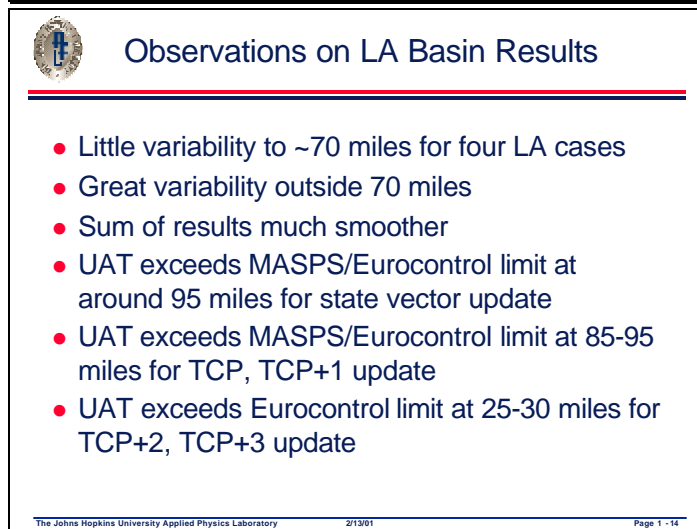
Slide 12



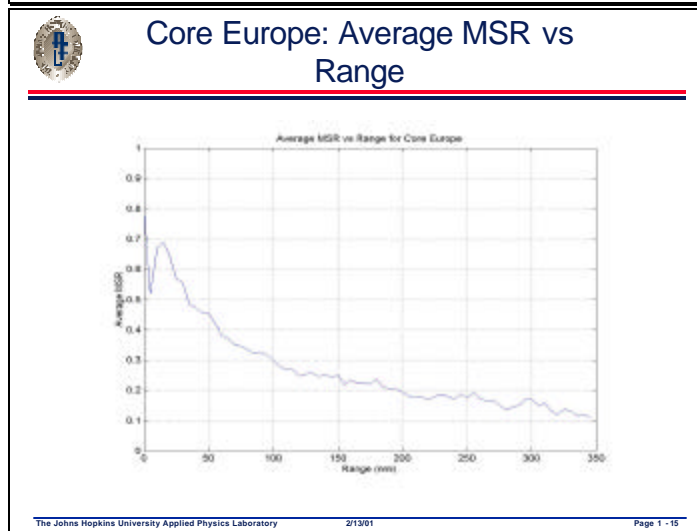
Slide 13



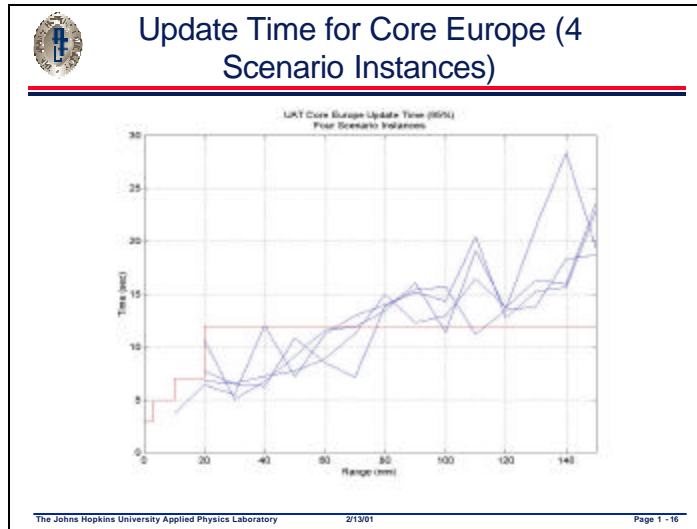
Slide 14



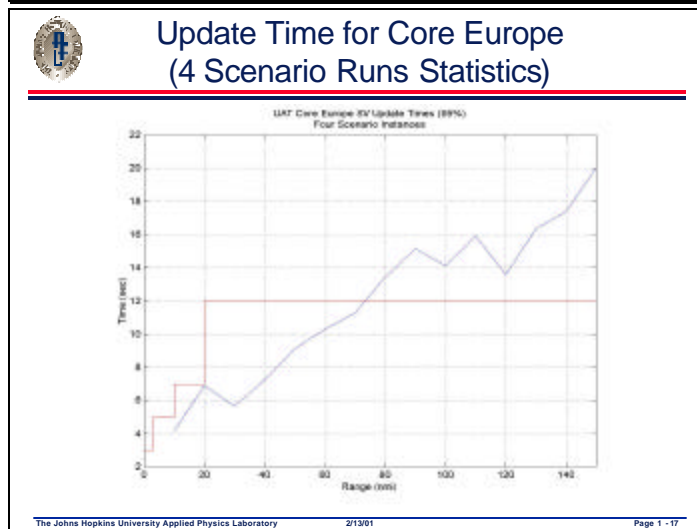
Slide 15



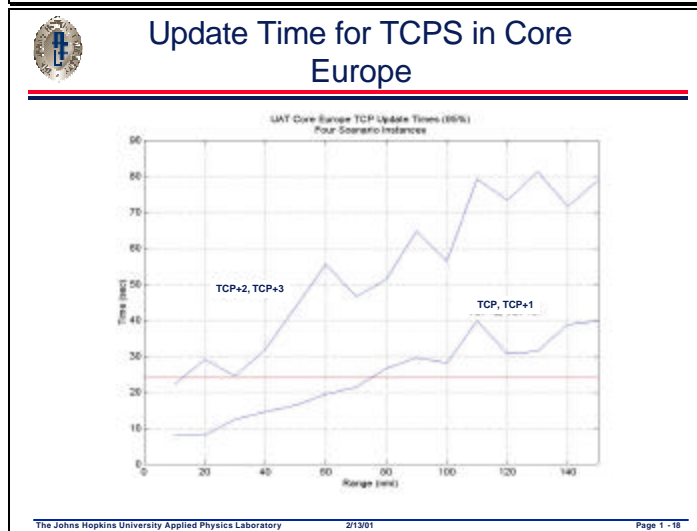
Slide 16




Slide 17



Slide 18



Slide 19




Observations on Core Europe Results

- UAT exceeds MASPS/Eurocontrol limit around 70 miles for state vector update
- UAT exceeds MASPS/Eurocontrol limit at 70-75 miles for TCP, TCP+1 update
- UAT exceeds Eurocontrol limit at all ranges for TCP+2, TCP+3 update

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Probe Aircraft Results

- Simulated 100 probe aircraft starting at 180 miles from victim, on collision course
- Determined range at time of receipt of ID, state vector, TCPs
- 95th percentile range was 156 nmi

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